Claims

1. Aqueous peroxide emulsion, optionally containing anti-freeze and/or further additives, which contains a specific emulsifier system comprising a copolymer of an α,β-unsaturated dicarboxylic acid and a C_{8-24} α-olefin the acid groups of which are esterified with an ethoxylated alcohol having a degree of ethoxylation of 1-45, characterized in that the emulsifier system further comprises an ethoxylated fatty alcohol with an HLB-value greater than 16.

2. Emulsion according to claim 1 wherein the emulsifier system consists essentially of the copolymer of an α,β-unsaturated dicarboxylic acid and a C_{8-24} α-olefin the acid groups of which are esterified with an ethoxylated alcohol having a degree of ethoxylation of 1-45 and the ethoxylated fatty alcohol.

3. Emulsion according to claim 1 or 2 wherein the peroxide is selected from the group consisting of peroxyesters, peroxydicarbonates, peroxycarbonates, diacyl peroxides, peroxides, and combinations thereof, and in which said peroxide is present in an amount of 30-70% by weight, based on the weight of the emulsion.

4. Emulsion according to claim 3 comprising one or more peroxides which require refrigerated storage and are present in an amount of 40-65% by weight, preferably 50-65% by weight, based on the weight of the emulsion.

5. Emulsion according to claim 4 further comprising an anti-freeze selected from the group consisting of methanol, ethanol, isopropanol, ethylene glycol, propylene glycol, and glycerol.

6. Emulsion according to any one of the preceding claims wherein the copolymer is present in an amount of 0.05 to 20% by weight and the ethoxylated fatty alcohol is present in an amount of 0.02-15% by weight, while the total weight of both compounds is at least 0.5% by weight, all based on the weight of the peroxide in said emulsion.

7. Emulsion according to claim 6 wherein the copolymer is present in an amount of 0.1-15% by weight, preferably 0.2-10% by weight, based on the weight of the peroxide.

8. Emulsion according to any one of the preceding claims wherein the HLB value of the ethoxylated fatty alcohol is greater than 16.5, preferably greater than 17.0.

9. Emulsion according to any one of the preceding claims wherein the droplet size of the emulsion, when measured using a Malvern Easy Sizer, is characterized by a d50 of 0.1-2.0 μm and a d99 of 0.5-9.0 μm.

10. Emulsion according to any one of the preceding claims with a viscosity of 10-300 mPa.s.

11. Use of an emulsion according to any one of the preceding claims in a polymerization or polymer modification reaction, preferably a reaction involving the polymerization of at least vinyl chloride.

12. Polyvinyl chloride obtainable by a process involving the reaction of at least vinyl chloride monomer and a peroxide that was used in the form of an emulsion according to any one of claims 1-10.